

AD-A087 113

CENTER FOR NAVAL ANALYSES ALEXANDRIA VA INST OF NAVAL--ETC F/6 5/4  
SUPERPOWER SECURITY INTERESTS IN THE INDIAN OCEAN AREA.(U)  
JUN 80 R B REMNEK

UNCLASSIFIED

CNA-PP-285

NL

1 of 1  
40 A  
100-113




END  
DATE  
FILMED  
9-80  
DTIC

PROFESSIONAL PAPER 285 / June 1980

ADA087113

LEVEL II

# SUPERPOWER SECURITY INTERESTS IN THE INDIAN OCEAN AREA

Richard B. Remnek

DTIC  
COLLECTED  
JUL 24 1980  
D  
C

DDC FILE COPY



**CENTER FOR NAVAL ANALYSES**

2000 North Beauregard Street, Alexandria, Virginia 22311

This document has been approved  
for public release and sale; its  
distribution is unlimited.

80 7 23 089

9 PROFESSIONAL PAPER 285 June 1989

1

6 **SUPERPOWER SECURITY  
INTERESTS IN  
THE INDIAN OCEAN AREA.**

10 Richard B. Remnek

12 33

DTIC  
JUL 24 1990

14 CNA-PP-285

This document has been approved  
for public release and sale; its  
distribution is unlimited.



*Institute of Naval Studies*

**CENTER FOR NAVAL ANALYSES**

2000 North Beauregard Street, Alexandria, Virginia 22311

403542

## SUPERPOWER SECURITY INTERESTS IN THE INDIAN OCEAN AREA\*

From today's perspective, the Indian Ocean resembled a veritable "zone of peace" just a few years ago. In 1977, prospects for a U.S.-Soviet agreement to stabilize their respective naval presences in the area seemed reasonably good. To be precise, stabilization of their naval forces in the Indian Ocean at limited levels was an accomplished fact by the mid-1970s. The vacuum of military power left by the withdrawal of the British fleet from "East of Suez" a few years before appeared to have been replaced by a new equilibrium in which regional powers aspired to play a major role in keeping the peace.

The Islamic revolution in Iran wholly upset the balance. Even before U.S. hostages were seized in Tehran and Soviet combat forces invaded Afghanistan, the volatile situation in Iran had impelled the United States towards adopting a stronger military posture in the area. The Soviet invasion has of course supercharged the po-

\*This paper is a revised version of a lecture prepared for delivery in several Indian Ocean states under a program sponsored by the U.S. International Communication Agency. It represents the views of the author, and does not necessarily represent the opinion of the Center for Naval Analyses, the Department of the Navy, the International Communication Agency, or any other agency of the U.S. Government.

Accession For	WTIS G-1041
DDC TAG	Unannounced
Justification	By <i>James A. [illegible]</i>
Distribution	Availability
Dist	Avail and/or special

*A*

litical atmosphere, and raised the spectre of war between the superpowers breaking out in Southwest Asia.

This atmosphere of heightened international tensions has raised the crucial question, "Are the superpowers on a collision course in the Indian Ocean?" The crystal ball that could furnish a definite answer has yet to be invented. However, an assessment of how these events in Southwest Asia have jeopardized the major interests of the superpowers and how their policies appear to be changing in response to these threats may reduce some of the uncertainty and give us a better understanding of the issue.

One should start this inquiry first by identifying the major U.S. and Soviet interests that are at stake. Now, the interests of superpowers are comprehensive, ranging from the development strategies of individual states to the avoidance of thermonuclear war. But only the latter and similar interests that affect the very survival of mankind and the basic quality of human existence can be considered vital. The nuclear imperative, as it has been called, has induced cooperation among the superpowers towards banning atomic weapons tests, preventing nuclear proliferation and limiting stockpiles of strategic weapons. It has also acted to constrain conflict between the superpowers, whose relationship remains fundamentally antagonistic largely because of the intensifi-

cation of a great power rivalry by a sweeping and contentious ideological debate over man's future.

Superpower competition has also been structured by many factors including the establishment of major spheres of interest in Europe and the Far East, delineated and vitalized by the physical military presence of the superpowers. Cuba and West Berlin have become isolated pockets of one superpower's presence within the power field of the other, with their status tolerated under well-defined conditions.

The area in which superpower rivalry has been most intense in recent years has been the Afro-Asian Third World where the situation has been more fluid than in Europe and the Far East; there the opportunities for assisted change have been greater, political alignments more flexible and the vital interests of the superpowers have been scarce.

Although this area has witnessed several superpower military (mainly naval) confrontations since the June 1967 War, none has resulted in combat. This is not accidental, since prudential norms based upon precedent appear to have guided the calculations of statesmen during crises. The latitude for action seems to be a function of which superpower is defending the status quo ante -- with respect to such principles as freedom of the seas, the sover-

eighty of established governments, and the territorial integrity of states. That is not to say that Moscow on balance favors the maintenance of a global status quo, or that failing a demonstration of opposition it will uphold it. The status quo is certainly not an immutable principle, nor is it self-enforcing. After all, if there is no policeman, there may be no law.

The point, however, is that when employing its military forces for political purposes in the Third World, Moscow has demonstrated its respect for this principle wherever the U.S. could have been expected to uphold it with a show of force. This condition was not present when the Soviets overthrew an established government while invading Afghanistan. In that situation, Soviet interest and their ability to bring local military forces to bear were so preponderant that a U.S. military response was out of the question; the riposte instead was to invoke linkage.

Thus, Afghanistan is not an exception to the "rules of the game," as the author of this theory, James McConnell, has labeled them,<sup>1</sup> but a reminder that their applicability is limited to Third World situations where a marked disparity in superpower military capabilities and interests does not exist.

The U.S. response to the Soviet intervention in Afghanistan also suggests that there are vital superpower interests in the Third World, aside from avoiding war, that have until recently played no direct role in superpower military confrontations. In the Indian Ocean area, oil is vital to the interests of the U.S. and especially its allies. Though an unhappy fact of international life, the West will likely depend upon Persian Gulf oil until alternative sources of energy are developed. Although the United States can and should do far more to conserve energy, reduction in its oil imports might also encourage the OPEC states to reduce production. And if they did so, the impact would fall less heavily upon Americans than West Europeans and Japanese, who rely far more upon imported oil in general and those from the Persian Gulf in particular. For the past few years, the proportion of Persian Gulf oil imports to all oil consumed was 72% for Japan, 60% for Western Europe, but only 16% for the United States.<sup>2</sup>

This is not to say that Persian Gulf oil is not important to the U.S. Even a temporary drop of 5% in the world supply of oil when the Iranian revolution took place sparked a 65% increase in crude oil prices and had a pronounced impact on American lifestyles.<sup>3</sup> Furthermore, in connection with the Arab campaign against Israel, the U.S. will probably be a target of retribution. The PLO reportedly might try to sink a U.S. oil tanker in the Persian Gulf or, with greater effect, to mine the Strait of Hormuz. And even



one successful act of sabotage might drive tanker insurance rates up towards prohibitive levels. Middle East oil producers might also refuse to sell oil to the United States. However, there are limits beyond which the disruption of the U.S. economy can also harm Arab interests. Over the past decade, the fortunes of Saudi Arabia and other oil producing nations have been increasingly linked to the U.S. economy. Indeed, U.S. and Saudi economic interests have become so intertwined that the security of Saudi Arabia and the stability of the Saudi government must be considered major U.S. security interests.

Now, whereas the U.S. stake in Persian Gulf oil can be considered vital, the same cannot be said thus far for the Soviet Union. Historically an oil exporter, the Soviet Union may soon become a net importer however. Whereas the USSR now exports about one million barrels of oil daily, current U.S. Government estimates indicate that it will be importing roughly 700,000 barrels a day in 1982.<sup>4</sup> And with continuing Soviet difficulties in exploiting existing oil fields, developing new ones, and converting to other fuels,<sup>5</sup> they might well become a major competitor for Persian Gulf oil by the mid-1980s.

If those needs prove to be great, then the Soviets would find themselves in an unprecedented and undesirable situation of depending, for the first time in their history, upon foreign supply of

a critically important resource. The foreign policy implications of that situation, and specifically of whether it would promote conflict or cooperation among consumer nations, are unclear. But there is no evident connection between a hypothetical Soviet need for Persian Gulf oil and their invasion of Afghanistan, the reasons for which we shall discuss later.

Though Persian Gulf oil may not be among them, there are nevertheless important Soviet interests in the Indian Ocean. To use a standard Soviet phrase, the "Soviet Union cannot remain indifferent to the situation along its southern border." Indeed, several threats -- some military and others political -- can be directed to the USSR from the Indian Ocean area.

The Soviets have often expressed fears about a possible strategic threat posed by U.S. ballistic missile-equipped submarines operating in the Indian Ocean. However, U.S. SSBNs have not patrolled these waters, nor were they ever likely to, mainly because of the excessive time wasted in transit between SSBN bases and the operating area.<sup>6</sup> And when the long range Trident SLBMs and submarines, which can carry out their deterrent mission from positions off the coasts of the U.S., are introduced, U.S. strategic forces in the Indian Ocean would seem to become an even more remote possibility than it has been until now.

Furthermore, the Soviets themselves have acted as though a U.S. strategic submarine threat from the Indian Ocean did not exist. They have not seen fit to upgrade significantly the very limited anti-submarine warfare capabilities of the forces they maintain in the Indian Ocean; nor have any large-scale Soviet ASW exercises been reported there.

Another and far less direct strategic problem for the USSR in the Indian Ocean region concerns China. In the event of a Sino-Soviet War -- now, in my opinion, far less likely than it was a decade ago -- the Trans-Siberian railroad, the major link between the Soviet European heartland and their Far Eastern Maritime region, could be cut. The Soviets might then have to rely upon cargo shipping through the Indian Ocean waters along the shortest sea route open year round between the USSR's European and Pacific ports.

The Chinese Navy is not now nor in the foreseeable future in any position to threaten Soviet sea lanes through the Indian Ocean. But with the help of friendly regimes situated along the key choke points into and out of the Indian Ocean, they might impede Soviet shipping. It is not surprising that Sino-Soviet competition has been intense around these choke points -- in Indonesia until the demise of Sukarno in the 1960s and in the countries surrounding

the Bab-el-Mandeb, specifically South Yemen and Somalia, until well into the 1970s.

Along the northern rim of the Indian Ocean, the USSR and China have tried to "contain" each other; the Soviets have sought to make India play a pivotal role in their strategy, which the Chinese tried to counter by forging close ties with Pakistan. The completion of the Korakoram highway, a modern-day "Silk Road" cutting through Pakistani-controlled Kashmir, has physically linked China and Pakistan. The road could have strategic value in certain situations, such as the Chinese rendering aid to a Pakistani government besieged by separatist insurgency. But in such cases Soviet interests are likely to be only marginally affected.

Regardless of the China factor, the northern tier of countries served by the Persian Gulf and Arabian Sea borders upon Soviet territory and for that reason alone is of major interest to them. In fact, as a border region it poses some security problems for the Soviets that are unique. The Iranian and Afghani peoples in particular have close linguistic and ethnic ties to their Moslem brethren on the Soviet side of the border. Historically, the Soviets have feared that Pan-Islamic and nationalist appeals would have a subversive influence among its Moslems who, if the current pattern of Soviet population growth continues, may number about one out of every five Soviet citizens by the year 2000.<sup>7</sup>

Also, as a nationality divided into Soviet and Iranian parts, the Azeris find themselves in a potentially vulnerable situation. It's worth recalling that Stalin was ever sensitive to the danger that subversive nationalist appeals, especially those broadcast from adjacent countries with sizeable minorities akin to the non-Russian nationalities of the USSR, might undermine the integrity of the Soviet multinational state. To avoid such a prospect, which the permanent Soviet military presence in Eastern Europe had made exceedingly remote, he expanded the USSR's western borders at the end of World War II, (mainly to "reunite" the Ukrainians after 300 years of separation). Stalin may also have had a similar purpose in mind when, while withdrawing Soviet forces from northern Iran after World War II, he set up the so-called Soviet Republic of Azerbaidzhan, presumably the initial step towards its annexation into the Soviet Union. To be sure, the Soviets were in no position militarily to resist strong U.S. pressures for their complete withdrawal from Iran, and the Soviet Republic of Azerbaidzhan proved to be a very short-lived affair.

Decades later, the Soviets reached a modus vivendi with the Shah of Iran, who, though strongly pro-Western, maintained reasonably good relations with his neighbor to the north. Though the overall situation in Iran under the Shah was far from optimal from Moscow's perspective, it nevertheless appeared to have been toler-

able. A relatively stable regional geo-political environment had evolved.

In my estimation, therefore, the fall of the Shah and the Islamic revolution in Iran threatened key security interests for both superpowers, but the interests affected were different. For the United States, the fall of the Shah effectively meant the collapse of an emergent military power, pro-Western, and strategically situated between the USSR and the Persian Gulf. The Shah had not only "contained" the USSR but also helped protect U.S. security interests in the Persian Gulf and furnished important intelligence facilities to the U.S. as well. In short, the fall of the Shah undermined the Nixon Doctrine, which relied upon regional powers to secure local Western interests.

Since the Shah's overthrow, the Islamic revolution in Iran has generated prolonged instability, which among other things has created new opportunities for Soviet involvement. In this connection the pro-Soviet Tudeh party, now one of the most tightly-knit political forces in Iran, bears close watching. The Soviet Union is also in a position to manipulate separatist pressures that have arisen with the collapse of centralized authority in Tehran. Regional nationalism is also bound to have a destabilizing impact not just in Iran but also in neighboring states: Iraq and Turkey may well face problems in containing a resurgent Kurdish national-

ist struggle; Pakistan may face similar problems in Baluchistan. Finally, the Islamic fundamentalist revival in Shiite Iran has had major destabilizing repercussions even in the Sunni Moslem world. Some observers see in that movement today threats to the stability of key pro-Western states such as Egypt and even Saudi Arabia.<sup>8</sup>

The Iranian revolution also threatens Soviet security interests, beyond those connected with the possible unsettling influence among Soviet Moslems. A threat arises from prolonged instability in a state where both superpowers have major interests at stake. Instability invites active foreign involvement. And since the stakes are high, the danger of misunderstanding each other's intentions is great. Escalating tensions could even culminate in a military clash.

The U.S. reaction to the Soviet invasion of Afghanistan, characterized by President Carter as "the greatest threat to world peace since 1945," suggests something of the gravity of the present situation. Because the Soviet invasion set off intense speculation about their designs on the region, it's useful to consider briefly what their main objectives may have been. Even before their intervention, the Soviets had become deeply involved in Afghanistan in support of a Marxist civilian regime which seized power in April 1978. Its heavy-handed approach towards implementing internal reforms had backfired into widespread rebellion that was erod-

ing Kabul's authority.<sup>9</sup> The large scale defections from the Afghan army were indicative of this problem. By the fall of 1979, it seemed time for the Soviets "to fish or cut bait." Anyone familiar with the activist bent of Soviet policy over the past decade should have realized that their answer would not be disengagement. For that would have been humiliating and possible dangerous. It would have been disquieting for other Third World regimes that depend upon Soviet support. In the Afghan context, it would have meant leaving the field to disorganized, conservative Moslem tribesmen. The Soviets might then have had to contend with political instability and Islamic fundamentalism in a country with which they share a 1,400-mile border, which is far longer than their Iranian frontier.

Enduring geo-political realities play a role here. There is a parallel between Russian expansion into Central Asia in the 19th century and the present Soviet predicament in Afghanistan. To protect its borders, the Russian Empire had felt it necessary to advance, only to be confronted with resistance from new forces. Over a century after they were written, the words of Prince Gorchakov, the tsarist foreign minister who presided over that expansion, have meaning for today. In 1864, he wrote, "The state... finds itself forced to choose one of two alternatives, either to give up this endless labor and to abandon its frontier to perpetual disturbance...or to plunge deeper and deeper into barbarous



countries, where the difficulties and expenses increase with every step." The greatest difficulty, he concluded "is knowing when to stop."<sup>10</sup>

Encouraged by the knowledge that they could act militarily in Afghanistan with impunity because of its location, and by their recent successes in other Third World crises, the Soviets undertook an adventurist invasion in which they replaced a recalcitrant government with a regime of their own making. The Soviets may have felt that if they were going to pay the price, they were also going to call the shots.

Now this is not to say that the Soviets calculated the costs of the invasion correctly. To be sure, the Soviets probably had already written off passage of SALT II through the U.S. Senate at least through this presidential election year. Also, the NATO decision to update Western European missile capabilities had already been made. Thus, in Moscow's estimate, some of the apparent costs of the invasion had been "prepaid." Nevertheless, they probably underestimated the strength of the U.S. reaction.

But they could not have been unaware that their conduct and the outcome of their actions would be cause for legitimate U.S. concern. After all, they flaunted international law by using their own armed forces to overthrow an established government. And they

installed a puppet regime in a manner reminiscent of the so-called "baggage train" governments in the wake of the Red Army's advance through Eastern Europe at the close of World War II. No wonder that the Soviet invasion aroused apprehensions about what they would do for an encore.

One point is very clear: the strategic status quo in Southwest Asia has shifted to the Soviet advantage. As President Brezhnev announced, Soviet armed forces will not leave Afghanistan "until their job is done."<sup>11</sup> And that might not be for a long time. As in Eastern Europe, the Soviets will probably find it necessary to maintain a local military presence to insure that the government in Kabul remains friendly. And since such a government will likely be perceived as a puppet, a large Soviet military presence may be needed as the principal instrument of that government's control. Moscow will find that it was far easier to enter Afghanistan than it will be to leave. The day when Afghanistan served as a buffer state may be over for good. For the foreseeable future, the status of Afghanistan will resemble more that of Mongolia than Finland.

The strategic military balance in the area has also been altered in Moscow's favor. In Afghanistan, the Soviets are now closer to the Persian Gulf and the Indian Ocean. By staging flights from Afghan airfields, it should be easier for them to project air pow-

er towards those areas. This could be important in a major war, in which targets in the Persian Gulf, any U.S. aircraft carrier battle groups within range and major U.S. support complexes like Diego Garcia presumably would be primary Soviet objectives.

Shorter distance is not the only important strategic benefit the Soviets receive by operating from Afghanistan. It's safer for the Soviets to mount military operations from foreign soil than from their own territory. It interposes a political barrier in the escalation of hostilities towards a broader, general war. By operating from Afghan territory, perhaps, like the Chinese in the Korean War, as "volunteers," the Soviets might stand a better chance of restricting warfare to the local level. To be sure, much depends on what stakes were involved. If the conflict directly threatened the flow of Persian Gulf oil, then formalities may have no practical bearing upon the U.S. response. Nevertheless, some of the politico-military inhibitions on the Soviet projection of power into the area from the north have been weakened by the Soviet military presence in Afghanistan.

Through the intermediary of the Marxist regime in Aden, the Soviets can also threaten Western security interests in the Persian Gulf area from a southern axis. Moscow has become deeply involved in South Yemen, particularly since the 1978 coup there. Last October the two governments signed a Treaty of Friendship and Coop-

eration.<sup>12</sup> Its article seven pledged the signatories to "apply all efforts towards...the elimination from the practice of international relations any manifestations of hegemonism and expansion" (Soviet codewords for Chinese foreign policy). In effect, Aden's new leaders have foresaken, formally at least, a pro-Peking orientation that former PDRY leaders had used to blunt Soviet influence.

The PDRY has long proclaimed a policy of spreading revolution to the entire Arabian peninsula and in the past actively sponsored subversive activities in the region. Although at present the PDRY appears interested in normalizing relations with its neighbors, this orientation may not last. Should, as seems likely, regional tensions mount once again, PDRY-backed insurgency in Oman, which has been suppressed in 1975, might revive. And if that insurgency assumes major proportions, the pro-Western government of Sultan Qabus could be weakened or perhaps even replaced by a leftist regime in the PDRY's image. If that came about, it would arouse anxieties for the security of oil traffic through the Strait of Hormuz.

Saudi Arabia is another target of PDRY-supported subversion. The fanatics who seized the Grand Mosque in Mecca appear to some to have had South Yemen connections.<sup>13</sup> The PDRY also threatens Saudi Arabia's security indirectly through its efforts to unify

the Yemens -- an outcome that the Saudis have long sought to prevent.

Regardless of its ability to influence the political future of the Arabian peninsula, the PDRY has the capability to mount a selective blockade of shipping through the Bab-el-Mandeb by exploiting their presence on Perim island. To be sure, any blockade contravenes the right of free passage through international straits, a principle which both superpowers have consistently upheld. Whatever the pretext, the Soviets would be unlikely to support such an action by the PDRY, but they might not prevent it. In this context, a Western military presence in the vicinity might deter Aden from a blockade attempt. Also, it might strengthen Moscow's possible appeals to Aden for restraint.

If one takes the Indian Ocean area as a whole into account, it appears that the strategic balance in the area has shifted against the West. The Soviets today are in a better position to threaten -- both directly by projecting military power from the north and indirectly by PDRY-supported subversive activities on the Arabian peninsula -- Western interests in the Persian Gulf.

In the light of the current asymmetry in superpower capabilities in the area, it's not surprising that the trend towards a stronger U.S. military presence in the Indian Ocean, evident well before

the seizure of American hostages in Tehran and the Soviet intervention in Afghanistan, has accelerated. U.S. aircraft carrier task group deployments in the Indian Ocean have been continuous since last year. A 1,800-man Marine combat contingent has recently been deployed to the area,<sup>14</sup> and a large Rapid Deployment Force is being developed. An infrastructure to support U.S. combat forces on both continuous and contingent bases is being developed. Plans have been announced to preposition combat materiel aboard vessels stationed in the Indian Ocean.<sup>15</sup> Support facilities on Diego Garcia are being expanded. Agreements for access to naval and air support facilities in littoral states are being negotiated.

A stronger U.S. military posture in the Indian Ocean has obvious problems, both actual and potential. There are major logistic support problems in keeping a carrier task group continuously deployed in the Indian Ocean, remote even from overseas supply points. To do so, the U.S. has had to draw down on naval forces from other operating areas, such as the Mediterranean and Pacific. And it remains to be seen whether U.S. allies will strengthen their own military capabilities in those areas.

Also, American involvement with those local governments that may be faced with instability or be committed to policies at variance

with broader U.S. objectives poses obvious problems for policy. These problems are not unique but apply equally to other foreign powers that have forged close ties with Indian Ocean states. The recent Soviet experience in Afghanistan again could serve as an example. Nevertheless, managing these problems effectively will be a major challenge for American diplomacy in the Indian Ocean area in the 1980s.

Pointing to the problems that may attend greater U.S. involvement in the region is not a prescription for inactivity. No less important than the risks are the possible benefits of a stronger security commitment in the region. And still less obvious (but perhaps of central importance in the minds of statesmen) are the imponderable dangers of inaction in a region that has been called an "arc of crisis."

Earlier I had indicated one possible benefit of U.S. military presence, namely deterring the PDRY from blockading the Bab-el-Mandeb, but there are many others. In fact, there are some positive recent precedents. For example, the deployment of the Constellation carrier task group into the Arabian Sea in March 1979, when Aden's leaders seemed intent on unifying the Yemens by armed force, seemed to reassure the Saudis and may have played a positive role in resolving that crisis as well. In addition, a U.S. warship patrol in the Persian Gulf last summer, at a time of wide-

spread rumors about imminent terrorist attacks on the oil lifeline, may have helped stabilize insurance rates on oil tanker traffic.

Whether or not a stronger U.S. military presence in the Indian Ocean will help check the unfavorable strategic trends in the area is of course difficult to predict. Much depends upon how skillfully military power is employed, and that of course depends largely upon the broader quality of statecraft that gives it expression. But the expectation that the absence of U.S. military power coupled with the presence of Soviet power will likely boomerang against Russia and redound to America's advantage in the long run is unwarranted. For over a decade, while the U.S. has maintained a relatively low military profile in the Third World (outside of Indochina), the Soviets have employed naval and other inventory forces (e.g., airborne units, transport aircraft and cargo vessels), which are far less capable than U.S. power projection forces, as an instrument of their foreign policy and on the whole with considerable success. Clearly there may be lessons to be learned from the Soviet experience.

Although my remarks thus far have focused upon U.S. military responses, which are perhaps the most visible ones, they are not the only ways in which the U.S. has reacted to recent events in Southwest Asia, as the protracted negotiations over the hostages sug-



gests. Generally speaking, more active U.S. diplomacy designed to resolve crises before they endanger our interests in a major importance can be anticipated. Additional attention is certain to be paid to the task of crisis prevention as well as crisis management. More effective long term U.S. policies in the region need to be developed. At the minimum, this requires more accurate reporting about local political situations and economic requirements as well as continuous high level attention by U.S. policymakers.

In retrospect, the fall of the Shah and the Islamic revolution in Iran and the Soviet invasion of Afghanistan have all threatened in varying degrees vital U.S. interests and stronger military and political commitments to secure those interests are in order.

It may then be asked how will the Soviets respond. Their most visible response thus far has been to augment their naval presence in the Indian Ocean to some 30 units.<sup>16</sup> It is not clear, however, whether this 50 percent increase over their "normal" strength during the past several years represents something more lasting than a crisis augmentation. It's worth adding that the new strategic situation in southwest Asia offers the Soviets other military options by which they might try to counter the U.S. military buildup in the Indian Ocean. For example, developing an infrastructure in

Afghanistan to support strike aircraft operations over Indian Ocean waters, though less conspicuous, might be a more credible and efficient Soviet military response than increasing the size of their Indian Ocean Squadron. Besides creating new opportunities for the Soviets to exercise influence in the area, the new strategic context has also enhanced their flexibility in dealing with the strengthened U.S. military presence there.

Partly because of this flexibility, we should not assume that a superpower naval arms race in the Indian Ocean is at hand. There are constraints operating against a spiralling augmentation of naval forces there. Both navies face serious logistical problems in supporting naval units in Indian Ocean waters that are distant from home ports. Also, the resources of both navies are limited. In allocating those resources, requirements for the performance of strategic missions have generally taken precedence over those connected with peacetime politico-military missions.<sup>17</sup> And the Indian Ocean deployments of both navies have been related almost exclusively to the performance of politico-military missions. Nor is there reason to believe that a change in this basic pattern is in the offing even as a consequence of the altered strategic situation in the area.

But if the superpower military buildup in the Indian Ocean remains a limited one, there are scant grounds for complacency. The Third World after all has been the setting for the vast majority of superpower military confrontations in recent decades. These confrontations never got out of hand, in part because vital interests were not at stake. However, each superpower has identified its own vital interests along the Arabian Sea basin. Although these interests, oil for the United States and national security for the Soviet Union, are different, their geographical focal points are uncomfortably in close proximity to each other. As long as the situation, particularly in Iran remains unstable, both superpowers are likely to be involved, and the danger of misjudging each other's intentions may be great. Yet, if the superpowers in shaping policies to secure their interests in the area proceed with an understanding of which of their respective interests are vital and which ones are not, then accommodation, at least on vital interests, is possible.

#### FOOTNOTES

1. For the complete exposition of this theory, see James M. McConnell, "The 'Rules of the Game': A Theory on the Practice of Superpower Naval Diplomacy" in Soviet Naval Diplomacy, edited by Bradford Dismukes and James McConnell, (New York: Pergamon Press, 1979), pp. 240-280.
2. Compiled from Central Intelligence Agency, National Foreign Assessment Center, International Energy Statistical Review, ER-IESR-80-002, January 30, 1980; and BP Statistical Review of the World Oil Industry 1977, (London: British Petroleum Co. Ltd., 1977).
3. See Newsweek, November 19, 1979, p. 76.
4. See Richard Halloran, "C.I.A. Sees Soviet Importing Oil Soon," New York Times, July 30, 1979, p. D-1.
5. For a review of these problems, see J. Richard Lee and James R. Lecky, "Soviet Oil Developments," in Soviet Economy in a Time of Change, Vol. I, Joint Economic Committee, Congress of the United States, 96th Congress, First Session, Joint Committee Print, October 10, 1979, pp. 581-599.
6. For a well-informed discussion of this issue, see Rodney W. Jones, "Ballistic Missile Submarines and Arms Control in the Indian Ocean," Asian Survey (March 1980), pp. 269-279.
7. According to the 1979 census of the USSR, there were an estimated 43 million Moslems out of a total population of 262 million. According to a recent estimate of the Foreign Demographic Analysis Division of the U.S. Bureau of the Census, Moslems will account for 60 to 65 million out of a total Soviet population of 300 million by the year 2000.
8. For an informative review of the current Egyptian situation, see Edward Cody, "Peace Brings New Demands in Egypt," Washington Post, March 31, 1980, pp. A1, 20.
9. This point is discussed in Fred Halliday, "Afghanistan -- A Revolution Consumes Itself," The Nation, November 17, 1979, pp. 492-495.
10. "Circular Dispatch Addressed by Prince Gorchakov to Russian Representatives Abroad, Dated November 21, 1864" in Russia's March Towards India, Vol. II by 'An Indian Officer' (London: Sampson Low, Marston and Co., 1894), pp. 303-304.

11. See Anthony Austin, "Soviets Say It Sent a Limited Force to Help Afghan Rebel Aggression," New York Times, December 31, 1979, p. 1.
12. The Russian text appears in Pravda, October 26, 1979, pp. 1-2.
13. See Adeed Dawisha, "Saudi Arabia's Search for Security," Adelphi Papers, No. 158, (London: The International Institute for Strategic Studies, 1980), p. 32.
14. See "1,800 Marines Reported on Way to Join Indian Ocean Task Force," New York Times, March 4, 1980, p. A7.
15. See Charles W. Corddry, "U.S. to Place 7 Shiploads of Gear in Indian Ocean," Baltimore Sun, March 6, 1980, p. 2.
16. John J. Fialka, "Soviets Add Five More Warships to Expanding Indian Ocean Fleet," Washington Star, February 21, 1980, p. 6.
17. To be precise, strategic strike missions and those connected with SSBN protection rank higher (and those related to strategic defense lower) in Soviet naval doctrine than peacetime "state interest" missions, as the Soviets call them. See James McConnell, "The Gorshkov Articles, The New Gorshkov Book and Their Relations to Policy" in Soviet Naval Influence, edited by Michael McGwire and John McDonnell, (New York: Praeger Publishers, 1977), pp. 565-620.

# CNA Professional Papers – 1976 to Present\*

- PP 141  
Mizrahi, Maurice M., "Generalized Hermite Polynomials," 5 pp., Feb 1976 (Reprinted from the Journal of Computational and Applied Mathematics, Vol. 1, No. 4 (1975), 273-277).  
\*Research supported by the National Science Foundation
- PP 143  
Horowitz, Stanley and Sherman, Allan (LCdr., USN), "Maintenance Personnel Effectiveness in the Navy," 33 pp., Jan 1976 (Presented at the RAND Conference on Defense Manpower, Feb 1976) AD A021 581
- PP 144  
Durch, William J., "The Navy of the Republic of China – History, Problems, and Prospects," 66 pp., Aug 1976 (Published in "A Guide to Asiatic Fleets," ed. by Barry M. Blechman and Robert Berman, Naval Institute Press) AD A030 460
- PP 145  
Kelly, Anne M., "Port Visits and the "Internationalist Mission" of the Soviet Navy," 36 pp., Apr 1976, AD A023 436
- PP 147  
Kessler, J. Christian, "Legal Issues in Protecting Offshore Structures," 33 pp., Jun 1976 (Prepared under task order N00014-68-A-0091-0023 for ONR) AD A028 389
- PP 149  
Squires, Michael L., "Counterforce Effectiveness: A Comparison of the Tsupis "K" Measure and a Computer Simulation," 24 pp., Mar 1976 (Presented at the International Study Association Meetings, 27 Feb 1976) AD A022 591
- PP 150  
Kelly, Anne M. and Petersen, Charles, "Recent Changes in Soviet Naval Policy: Prospects for Arms Limitations in the Mediterranean and Indian Ocean," 28 pp., Apr 1976, AD A 023 723
- PP 151  
Horowitz, Stanley A., "The Economic Consequences of Political Philosophy," 8 pp., Apr 1976 (Reprinted from Economic Inquiry, Vol. XIV, No. 1, Mar 1976)
- PP 152  
Mizrahi, Maurice M., "On Path Integral Solutions of the Schrodinger Equation, Without Limiting Procedure," 10 pp., Apr 1976 (Reprinted from Journal of Mathematical Physics, Vol. 17, No. 4 (Apr 1976), 566-576).  
\*Research supported by the National Science Foundation
- PP 153  
Mizrahi, Maurice M., "WKB Expansions by Path Integrals, With Applications to the Anharmonic Oscillator," 137 pp., May 1976, AD A025 440  
\*Research supported by the National Science Foundation
- PP 154  
Mizrahi, Maurice M., "On the Semi-Classical Expansion in Quantum Mechanics for Arbitrary Hamiltonians," 19 pp., May 1976 (Published in Journal of Mathematical Physics, Vol. 18, No. 4, pp. 789-790, Apr 1977), AD A025 441
- PP 155  
Squires, Michael L., "Soviet Foreign Policy and Third World Nations," 26 pp., Jun 1976 (Prepared for presentation at the Midwest Political Science Association meetings, Apr 30, 1976) AD A028 388
- PP 156  
Stallings, William, "Approaches to Chinese Character Recognition," 12 pp., Jun 1976 (Reprinted from Pattern Recognition (Pergamon Press), Vol. 8, pp. 87-98, 1976) AD A028 692
- PP 157  
Morgan, William F., "Unemployment and the Pentagon Budget: Is There Anything in the Empty Pork Barrel?" 20 pp., Aug 1976 AD A030 455
- PP 158  
Haskell, LCdr. Richard D. (USN), "Experimental Validation of Probability Predictions," 25 pp., Aug 1976 (Presented at the Military Operations Research Society Meeting, Fall 1976) AD A030 458
- PP 159  
McConnell, James M., "The Gorshkov Articles, The New Gorshkov Book and Their Relation to Policy," 93 pp., Jul 1976 (Published in Soviet Naval Influence: Domestic and Foreign Dimensions, ed. by M. McGwire and J. McDohnell, New York: Praeger, 1977) AD A029 227
- PP 160  
Wilson, Desmond P., Jr., "The U.S. Sixth Fleet and the Conventional Defense of Europe," 50 pp., Sep 1976, AD A030 457
- PP 161  
Melich, Michael E. and Peet, Vice Adm. Ray (USN, Retired), "Fleet Commanders: Afloat or Ashore?" 9 pp., Aug 1976 (Reprinted from U.S. Naval Institute Proceedings, Jun 1976) AD A030 456
- PP 162  
Friedheim, Robert L., "Parliamentary Diplomacy," 106 pp. Sep 1976 AD A033 306
- PP 163  
Lockman, Robert F., "A Model for Predicting Recruit Losses," 9 pp., Sep 1976 (Presented at the 84th annual convention of the American Psychological Association, Washington, D.C., 4 Sep 1976) (Published in Defense Manpower Policy (Richard V. L. Cooper, ed.), The Rand Corporation, 1979), AD A030 459
- PP 164  
Mahoney, Robert B., Jr., "An Assessment of Public and Elite Perceptions in France, The United Kingdom, and the Federal Republic of Germany," 31 pp., Feb 1977 (Presented at Conference "Perception of the U.S. – Soviet Balance and the Political Uses of Military Power" sponsored by Director, Advanced Research Projects Agency, April 1976) AD A036 599
- PP 165  
Jondrow, James M., "Effects of Trade Restrictions on Imports of Steel," 67 pp., November 1976, (Delivered at ILAB Conference in Dec 1976)
- PP 166 – Revised  
Feldman, Paul, "Why It's Difficult to Change Regulation," Oct 1976, AD A037 682
- PP 167  
Kleinman, Samuel, "ROTC Service Commitments: a Comment," 4 pp., Nov 1976, (Published in Public Choice, Vol. XXIV, Fall 1976) AD A033 305
- PP 168  
Lockman, Robert F., "Revalidation of CNA Support Personnel Selection Measures," 36 pp., Nov 1976
- PP 169  
Jacobson, Louis S., "Earnings Losses of Workers Displaced from Manufacturing Industries," 38 pp., Nov 1976, (Delivered at ILAB Conference in Dec 1976), AD A039 809
- PP 170  
Brechling, Frank P., "A Time Series Analysis of Labor Turnover," Nov 1976, (Delivered at ILAB Conference in Dec 1976)
- PP 171  
Jordan, A. S.\* and Ralston, J. M., "A Diffusion Model for GaP Red LED Degradation," 10 pp., Nov 1976, (Published in Journal of Applied Physics, Vol. 47, pp. 4518-4527, Oct 1976)  
\*Bell Laboratories
- PP 172  
Classen, Kathleen P., "Unemployment Insurance and the Length of Unemployment," Dec 1976, (Presented at the University of Rochester Labor Workshop on 16 Nov 1976)
- PP 173  
Kleinman, Samuel D., "A Note on Racial Differences in the Added-Worker/Discouraged-Worker Controversy," 2 pp., Dec 1976, (Published in the American Economist, Vol. XX, No. 1, Spring 1976)
- PP 174  
Mahoney, Robert B., Jr., "A Comparison of the Brookings and International Incidents Projects," 12 pp. Feb 1977 AD A037 206
- PP 175  
Levine, Daniel; Stolfo, Peter and Spruill, Nancy, "Public Drug Treatment and Addict Crime," June 1976, (Published in Journal of Legal Studies, Vol. 5, No. 2)
- PP 176  
Felix, Wendi, "Correlates of Retention and Promotion for USNA Graduates," 38 pp., Mar 1977, AD A039 040
- PP 177  
Lockman, Robert F. and Warner, John T., "Predicting Attrition: A Test of Alternative Approaches," 33 pp. Mar 1977. (Presented at the OSD/ONR Conference on Enlisted Attrition, Xerox International Training Center, Leesburg, Virginia, 4-7 April 1977). AD A039 047
- PP 178  
Kleinman, Samuel D., "An Evaluation of Navy Unrestricted Line Officer Accession Programs," 23 pp. April 1977, (Presented at the NATO Conference on Manpower Planning and Organization Design, Stress, Italy, 20 June 1977), AD A039 048

\*CNA Professional Papers with an AD number may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. Other papers are available from the Management Information Office, Center for Naval Analyses, 2000 North Beauregard Street, Alexandria, Virginia 22311. An Index of Selected Publications is also available on request. The index includes a Listing of Professional Papers, with abstracts, issued from 1969 to February 1978.

- PP 179  
Stoloff, Peter H. and Balut, Stephen J., "Vacate: A Model for Personnel Inventory Planning Under Changing Management Policy," 14 pp. April 1977. (Presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977). AD A039 049
- PP 180  
Horowitz, Stanley A. and Sherman, Allan, "The Characteristics of Naval Personnel and Personnel Performance," 16 pp. April 1977. (Presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977). AD A039 050
- PP 181  
Balut, Stephen J. and Stoloff, Peter, "An Inventory Planning Model for Navy Enlisted Personnel," 35 pp., May 1977. (Prepared for presentation at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Science, 9 May 1977, San Francisco, California). AD A042 221
- PP 182  
Murray, Russell, 2nd, "The Quest for the Perfect Study or My First 1138 Days at CNA," 57 pp., April 1977
- PP 183  
Kassing, David, "Changes in Soviet Naval Forces," 33 pp., November, 1976. (Published as part of Chapter 3, "General Purpose Forces: Navy and Marine Corps," in Arms, Men, and Military Budgets, Francis P. Hoerber and William Schneider, Jr. (eds.), (Crane, Russak & Company, Inc. New York), 1977). AD A040 106
- PP 184  
Lockman, Robert F., "An Overview of the OSD/ONR Conference on First Term Enlisted Attrition," 22 pp., June 1977. (Presented to the 39th MORIS Working Group on Manpower and Personnel Planning, Annapolis, Md., 28-30 Jun 1977). AD A043 618
- PP 185  
Kassing, David, "New Technology and Naval Forces in the South Atlantic," 22 pp. (This paper was the basis for a presentation made at the Institute for Foreign Policy Analysis, Cambridge, Mass., 28 April 1977). AD A043 619
- PP 186  
Mizrahi, Maurice M., "Phase Space Integrals: With out Limiting Procedure," 31 pp., May 1977. (Invited paper presented at the 1977 NATO Institute on Path Integrals and Their Application in Quantum Statistical and Solid State Physics, Antwerp, Belgium, July 17-30, 1977). (Published in Journal of Mathematical Physics, 1977), pp. 298-307, Jan 1978). AD A040 107
- PP 187  
Coile, Russell C., "Nomography for Operations Research," 35 pp., April 1977. (Presented at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Science, San Francisco, California, 9 May 1977). AD A043 620
- PP 188  
Durch, William J., "Information Processing and Outcome Forecasting for Multilateral Negotiations: Testing One Approach," 53 pp., May 1977. (Prepared for presentation to the 18th Annual Convention of the International Studies Association, Chase Park Plaza Hotel, St. Louis, Missouri, March 16-20, 1977). AD A042 222
- PP 189  
Coile, Russell C., "Error Detection in Computerized Information Retrieval Data Bases," July, 1977, 13 pp. (Presented at the Sixth Cranfield International Conference on Mechanized Information Storage and Retrieval Systems, Cranfield Institute of Technology, Cranfield, Bedford, England, 26-29 July 1977). AD A043 580
- PP 190  
Mahoney, Robert B., Jr., "European Perceptions and East-West Competition," 96 pp., July 1977. (Prepared for presentation at the annual meeting of the International Studies Association, St. Louis, Mo., March, 1977). AD A043 661
- PP 191  
Sawyer, Ronald, "The Independent Field Assignment: One Man's View," August 1977, 25 pp.
- PP 192  
Holen, Arlene, "Effects of Unemployment Insurance Entitlement on Duration and Job Search Outcome," August 1977, 6 pp. (Reprinted from Industrial and Labor Relations Review, Vol. 30, No. 4, Jul 1977)
- PP 193  
Horowitz, Stanley A., "A Model of Unemployment Insurance and the Work Test," August 1977, 7 pp. (Reprinted from Industrial and Labor Relations Review, Vol. 30, No. 40, Jul 1977)
- PP 194  
Classen, Kathleen P., "The Effects of Unemployment Insurance on the Duration of Unemployment and Subsequent Earnings," August 1977, 7 pp. (Reprinted from Industrial and Labor Relations Review, Vol. 30, No. 40, Jul 1977)
- PP 195  
Brechtling, Frank, "Unemployment Insurance Taxes and Labor Turnover: Summary of Theoretical Findings," 12 pp. (Reprinted from Industrial and Labor Relations Review, Vol. 30, No. 40, Jul 1977)
- PP 196  
Rakston, J. M. and Lumior, O. G., "Degradation of Bulk Electroluminescent Efficiency in Zn, O-Doped GaP LEDs," July 1977, 3 pp. (Reprinted from IEEE Transactions on Electron Devices, Vol. ED 24, No. 7, July 1977)
- PP 197  
Wells, Anthony R., "The Centre for Naval Analyses," 14 pp., Dec 1977, AD A049 107
- PP 198  
Classen, Kathleen P., "The Distributional Effects of Unemployment Insurance," 25 pp., Sept 1977. (Presented at a Hoover Institution Conference on Income Distribution, Oct 7-8, 1977). AD A054 423
- PP 199  
Durch, William J., "Revolution From A.F.A.R. - The Cuban Armed Forces in Africa and the Middle East," Sep 1977, 16 pp., AD A046 268
- PP 200  
Powers, Bruce F., "The United States Navy," 40 pp., Dec 1977. (Published as a chapter in The U.S. War Machine by Salamander Books, England, 1978). AD A049 108
- PP 201  
Durch, William J., "The Cuban Military in Africa and The Middle East: From Algeria to Angola," Sep 1977, 67 pp., AD A045 675
- PP 202  
Feldman, Paul, "Why Regulation Doesn't Work," (Reprinted from Technological Change and Welfare in the Regulated Industries, Brookings Reprint 219, 1971, and Review of Social Economy, Vol. XXIX, March, 1971, No. 1.) Sep 1977, 8 pp.
- PP 203  
Feldman, Paul, "Efficiency, Distribution, and the Role of Government in a Market Economy," (Reprinted from The Journal of Political Economy, Vol. 79, No. 3, May/June 1971.) Sep 1977, 19 pp., AD A045 675
- PP 204  
Wells, Anthony R., "The 1967 June War: Soviet Naval Diplomacy and The Sixth Fleet - A Re-appraisal," Oct 1977, 36 pp., AD A047 236
- PP 205  
Coile, Russell C., "A Bibliometric Examination of the Square Root Theory of Scientific Publication Productivity," (Presented at the annual meeting of the American Society for Information Science, Chicago, Illinois, 29 September 1977.) Oct 1977, 6 pp., AD A047 237
- PP 206  
McConnell, James M., "Strategy and Missions of the Soviet Navy in the Year 2000," 48 pp., Nov 1977. (Presented at a Conference on Problems of Sea Power as we Approach the 21st Century, sponsored by the American Enterprise Institute for Public Policy Research, 6 October 1977, and subsequently published in a collection of papers by the Institute). AD A047 244
- PP 207  
Goldberg, Lawrence, "Cost-Effectiveness of Potential Federal Policies Affecting Research & Development Expenditures in the Auto, Steel and Food Industries," 36 pp., Oct 1977. (Presented at Southern Economic Association Meetings beginning 2 November 1977). AD A046 269
- PP 208  
Roberts, Stephen S., "The Decline of the Overseas Station Fleets: The United States Asiatic Fleet and the Shanghai Crisis, 1932," 18 pp., Nov 1977. (Reprinted from The American Neptune, Vol. XXXVII, No. 3, July 1977). AD A047 245
- PP 209 - Classified.
- PP 210  
Kassing, David, "Protecting The Fleet," 40 pp., Dec 1977. (Prepared for the American Enterprise Institute Conference on Problems of Sea Power as We Approach the 21st Century, October 6-7, 1977). AD A049 109
- PP 211  
Mizrahi, Maurice M., "On Approximating the Circular Coverage Function," 14 pp., Feb 1978, AD A054 429
- PP 212  
Mangel, Marc, "On Singular Characteristic Initial Value Problems with Unique Solutions," 20 pp., Jun 1978, AD A058 535
- PP 213  
Mangel, Marc, "Fluctuations in Systems with Multiple Steady States: Application to Lancaster Equations," 12 pp., Feb 78. (Presented at the First Annual Workshop on the Information Linkage Between Applied Mathematics and Industry, Naval PG School, Feb 23-25, 1978). AD A071 472

- PP 214  
Weinland, Robert G., "A Somewhat Different View of The Optimal Naval Posture," 37 pp., Jun 1978 (Presented at the 1978 Convention of the American Political Science Association (APSA/IUS Panel on "Changing Strategic Requirements and Military Posture"), Chicago, Ill., September 2, 1978), AD A056 228
- PP 215  
Coile, Russell C., "Comments on: Principles of Information Retrieval by Manfred Kochen," 10 pp., Mar 78, (Published as a Letter to the Editor, Journal of Documentation, Vol. 31, No. 4, pages 298-301, December 1975), AD A054 426
- PP 216  
Coile, Russell C., "Lotka's Frequency Distribution of Scientific Productivity," 18 pp., Feb 1978, (Published in the Journal of the American Society for Information Science, Vol. 28, No. 6, pp. 368-370, November 1977), AD A054 425
- PP 217  
Coile, Russell C., "Bibliometric Studies of Scientific Productivity," 17 pp., Mar 78, (Presented at the Annual meeting of the American Society for Information Science held in San Francisco, California, October 1976), AD A054 442
- PP 218 - Classified.
- PP 219  
Huntzinger, R. LaVar, "Market Analysis with Rational Expectations: Theory and Estimation," 60 pp., Apr 78, AD A054 422
- PP 220  
Maurer, Donald E., "Diagonalization by Group Matrices," 26 pp., Apr 78, AD A054 443
- PP 221  
Weinland, Robert G., "Superpower Naval Diplomacy in the October 1973 Arab-Israeli War," 76 pp., Jun 1978 (Published in Seapower in the Mediterranean: Political Utility and Military Constraints, The Washington Papers No. 61, Beverly Hills and London: Sage Publications, 1979), AD A055 564
- PP 222  
Mizrahi, Maurice M., "Correspondence Rules and Path Integrals," 30 pp., Jun 1978 (Invited paper presented at the CNRS meeting on "Mathematical Problems in Feynman's Path Integrals," Marseille France, May 22-26, 1978) (Published in Springer Verlag Lecture Notes in Physics, 106 (1979), 234-253) AD A055 536
- PP 223  
Mangel, Marc, "Stochastic Mechanics of Molecule Ion Molecule Reactions," 21 pp., Jun 1978, AD A056 227
- PP 224  
Mangel, Marc, "Aggregation, Bifurcation, and Extinction in Exploited Animal Populations," 48 pp., Mar 1978, AD A058 536  
\*Portions of this work were started at the Institute of Applied Mathematics and Statistics University of British Columbia, Vancouver, B.C., Canada
- PP 225  
Mangel, Marc, "Oscillations, Fluctuations, and the Hopf Bifurcation," 43 pp., Jun 1978, AD A058 537  
\*Portions of this work were completed at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, Canada
- PP 226  
Ralston, J. M. and J. W. Mann\*, "Temperature and Current Dependence of Degradation in Red-Emitting GaP LEDs," 34 pp., Jun 1978 (Published in Journal of Applied Physics, 50, 3630, May 1979) AD A058 538  
\*Bell Telephone Laboratories, Inc
- PP 227  
Mangel, Marc, "Uniform Treatment of Fluctuations at Critical Points," 50 pp., May 1978, AD A058 539
- PP 228  
Mangel, Marc, "Relaxation at Critical Points Deterministic and Stochastic Theory," 54 pp., Jun 1978, AD A058 540
- PP 229  
Mangel, Marc, "Diffusion Theory of Reaction Rates. I Formulation and Einstein-Smoluchowski Approximation," 50 pp., Jan 1978, AD A058 541
- PP 230  
Mangel, Marc, "Diffusion Theory of Reaction Rates. II Ornstein-Uhlenbeck Approximation," 34 pp., Feb 1978, AD A058 542
- PP 231  
Wilson, Desmond P., Jr., "Naval Projection Forces: The Case for a Responsive MAF," Aug 1978, AD A058 543
- PP 232  
Jacobson, Louis, "Can Policy Changes Be Made Acceptable to Labor?" Aug 1978 (Submitted for publication in Industrial and Labor Relations Review), AD A061 528
- PP 233  
Jacobson, Louis, "An Alternative Explanation of the Cyclical Pattern of Quites," 23 pp Sep 1978
- PP 234 - Revised  
Jondrow, James and Levy, Robert A., "Does Federal Expenditure Displace State and Local Expenditure: The Case of Construction Grants," 25 pp., Oct 1979
- PP 235  
Mizrahi, Maurice M., "The Semiclassical Expansion of the Anharmonic Oscillator Propagator," 41 pp., Oct 1978 (Published in Journal of Mathematical Physics 20 (1979), pp. 844-855), AD A061 538
- PP 237  
Maurer, Donald, "A Matrix Criterion for Normal Integral Bases," 10 pp., Jan 1979 (Published in the Illinois Journal of Mathematics, Vol. 22 (1978), pp. 672-681)
- PP 238  
Utgoft, Kathleen, Classen, "Unemployment Insurance and The Employment Rate," 20 pp Oct 1978 (Presented at the Conference on Economic Indicators and Performance: The Current Dilemma Facing Government and Business Leaders, presented by Indiana University Graduate School of Business), AD A061 527
- PP 239  
Trost, R. P. and Warner, J. T., "The Effects of Military Occupational Training on Civilian Earnings: An Income Selectivity Approach," 38 pp., Nov 1979, AD A077 831
- PP 240  
Powers, Bruce, "Goals of the Center for Naval Analysis," 13 pp., Dec 1978, AD A063 759
- PP 241  
Mangel, Marc, "Fluctuations at Chemical Instabilities," 24 pp., Dec 1978 (Published in Journal of Chemical Physics, Vol. 69, No. 8, Oct 15, 1978), AD A063 787
- PP 242  
Simpson, William R., "The Analysis of Dynamically Interactive Systems (Air Combat by the Numbers)," 160 pp., Dec 1978, AD A063 780
- PP 243  
Simpson, William R., "A Probabilistic Formulation of Murphy Dynamics as Applied to the Analysis of Operational Research Problems," 18 pp., Dec 1978, AD A063 761
- PP 244  
Sherman, Allan and Morowitz, Stanley A., "Maintenance Costs of Complex Equipment," 20 pp., Dec 1978 (Published By The American Society of Naval Engineers, Naval Engineers Journal, Vol. 91, No. 6, Dec 1979) AD A071 473
- PP 245  
Simpson, William R., "The Accelerometer Methods of Obtaining Aircraft Performance from Flight Test Data (Dynamic Performance Testing)," 403 pp., Jun 1979, AD A075 226
- PP 246  
Brechling, Frank, "Layoffs and Unemployment Insurance," 35 pp., Feb 1979 (Presented at the NBER Conference on "Low Income Labor Markets," Chicago, Jun 1978)
- PP 248  
Thomas, James A., Jr., "The Transport Properties of Dilute Gases in Applied Fields," 183 pp., Mar 1979
- PP 249  
Glasser, Kenneth S., "A Secretary Problem with a Random Number of Choices," 23 pp., Mar 1979
- PP 250  
Mangel, Marc, "Modeling Fluctuations in Macroscopic Systems," 26 pp., Jun 1979
- PP 251  
Trost, Robert P., "The Estimation and Interpretation of Several Selectivity Models," 37 pp., Jun 1979, AD A075 941
- PP 252  
Nunn, Walter R., "Position Finding with Prior Knowledge of Covariance Parameters," 5 pp., Jun 1979 (Published in IEEE Transactions on Aerospace & Electronic Systems, Vol. AES 15, No. 3, March 1979)
- PP 253  
Glasser, Kenneth S., "The d-Choice Secretary Problem," 32 pp., Jun 1979, AD A075 225
- PP 254  
Mangel, Marc and Quanbeck, David B., "Integration of a Bivariate Normal Over an Offset Circle," 14 pp., Jun 1979
- PP 255 - Classified
- PP 256  
Maurer, Donald E., "Using Personnel Distribution Models," 27 pp., Feb 1980



- PP 267  
Thaler, R., "Discounting and Fiscal Constraints: Why Discounting is Always Right," 10 pp., Aug 1979, AD A075 224
- PP 268  
Mangel, Marc S. and Thomas, James A., Jr., "Analytical Methods in Search Theory," 86 pp., Nov 1979, AD A077 832
- PP 269  
Glass, David V.; Hsu, Ih-Ching; Nunn, Walter R. and Perin, David A., "A Class of Commutative Markov Matrices," 17 pp., Nov 1979, AD A077 833
- PP 260  
Mangel, Marc S. and Cope, Davis K., "Detection Rate and Sweep Width in Visual Search," 14 pp., Nov 1979, AD A077 834
- PP 261  
Vila, Carlos L.; Zvijac, David J. and Ross, John, "Franck-Condon Theory of Chemical Dynamics. VI. Angular Distributions of Reaction Products," 14 pp., Nov 1979 (Reprinted from Journal Chem. Phys. 70(12), 15 Jun 1979), AD A076 287
- PP 262  
Petersen, Charles C., "Third World Military Elites in Soviet Perspective," 50 pp., Nov 1979, AD A077 835
- PP 263  
Robinson, Kathy I., "Using Commercial Tankers and Containerships for Navy Underway Replenishment," 25 pp., Nov 1979, AD A077 836
- PP 264  
Weinland, Robert G., "The U.S. Navy in the Pacific: Past, Present, and Glimpses of the Future," 31 pp., Nov 1979 (Delivered at the International Symposium on the Sea, sponsored by the International Institute for Strategic Studies, The Brookings Institution and the Yomuri Shimbum, Tokyo, 16-20 Oct 1978) AD A066 837
- PP 265  
Weinland, Robert G., "War and Peace in the North: Some Political Implications of the Changing Military Situation in Northern Europe," 18 pp., Nov 1979 (Prepared for presentation to the "Conference of the Nordic Balance in Perspective: The Changing Military and Political Situation," Center for Strategic and International Studies, Georgetown University, Jun 15-16, 1978) AD A077 838
- PP 266  
Utgoff, Kathy Classen, and Brechling, Frank, "Taxes and Inflation," 25 pp., Nov 1979
- PP 267  
Trist, Robert P. and Vogel, Robert C., "The Response of State Government Receipts to Economic Fluctuations and the Allocation of Counter-Cyclical Revenue Sharing Grants," 12 pp., Dec 1979 (Reprinted from the Review of Economics and Statistics, Vol. LXI, No. 3, August 1979)
- PP 268  
Thomason, James S., "Seaport Dependence and Inter-State Cooperation: The Case of Sub-Saharan Africa," 141 pp., Jan 1980
- PP 269  
Weiss, Kenneth G., "The Soviet Involvement in the Ogaden War," 42 pp., Jan 1980 (Presented at the Southern Conference on Slavic Studies in October, 1979)
- PP 270  
Remnek, Richard, "Soviet Policy in the Horn of Africa: The Decision to Intervene," 52 pp., Jan 1980 (To be published in "The Soviet Union in the Third World: Success or Failure," ed by Robert H. Donaldson, Westview Press, Boulder, Co. Summer 1980)
- PP 271  
McConnell, James, "Soviet and American Strategic Doctrines: One More Time," 43 pp., Jan 1980
- PP 272  
Weiss, Kenneth G., "The Azores in Diplomacy and Strategy, 1940-1945," 46 pp., Mar 1980
- PP 273  
Nakada, Michael K., "Labor Supply of Wives with Husbands Employed Either Full Time or Part Time," 39 pp., Mar 1980
- PP 275  
Goldberg, Lawrence, "Recruiters Advertising and Navy Enlistments," 34 pp., Mar 1980
- PP 276  
Goldberg, Lawrence, "Delaying an Overhaul and Ship's Equipment," 40 pp., May 1980
- PP 277  
Mangel, Marc, "Small Fluctuations in Systems with Multiple Limit Cycles," 19 pp., Mar 1980 (Published in SIAM J. Appl. Math., Vol. 38, No. 1, Feb 1980)
- PP 278  
Mizrahi, Maurice, "A Targeting Problem: Exact vs. Expected Value Approaches," 23 pp., Apr 1980
- PP 279  
Walt, Stephen M., "Causal Inferences and the Use of Force: A Critique of Force Without War," 50 pp., May 1980
- PP 280  
Goldberg, Lawrence, "Estimation of the Effects of A Ship's Straming on the Failure Rate of its Equipment: An Application of Econometric Analysis," 25 pp., April 1980
- PP 283  
Dismukes, Bradford, "Expected Demand for the U.S. Navy to Serve as An Instrument of U.S. Foreign Policy: Thinking About Political and Military Environmental Factors," 30 pp., April 1980
- PP 284  
J. Keilson,\* W. Nunn, and U. Sumita,\*\* "The Laguerre Transform," 119 pp., May 1980  
\*The Graduate School of Management, University of Rochester and the Center for Naval Analyses  
\*\*The Graduate School of Management, University of Rochester
- PP 285  
Remnek, Richard B., "Superpower Security Interests in the Indian Ocean Area," 26 pp., Jun 1980